

Otis. (F. N.)

RÉSUMÉ OF THE EXPERIENCE OF  
SEVENTEEN YEARS  
IN THE  
OPERATION  
OF  
DILATING URETHROTOMY

BY  
FESSENDEN N. OTIS, M.D.

CLINICAL PROFESSOR OF GENITO-URINARY DISEASES IN THE COLLEGE OF PHYSICIANS AND  
SURGEONS, NEW YORK; CONSULTING SURGEON TO CHARITY HOSPITAL,  
ST. ELIZABETH'S HOSPITAL, THE MANHATTAN EYE  
AND EAR HOSPITAL, ETC.

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## RÉSUMÉ OF THE EXPERIENCE OF SEVENTEEN YEARS

IN THE OPERATION OF

### DILATING URETHROTOMY.<sup>1</sup>

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THE operation of dilating urethrotomy, for the removal of urethral stricture, as devised and practised by myself, has now been before the medical profession for nearly seventeen years. The first dilating urethrotome, with a brief report of six cases upon which it had been used, having been presented at a meeting of the New York Medical Journal Association, November 24, 1871.

Previous to that time, internal urethrotomy, as a rule, was performed only as a last resort, in cases when gradual dilatation was for some grave reason deemed impracticable, or when only very temporary relief had been obtained by that method.

In the performance of internal urethrotomy, at that time, there were no fixed principles established for the guidance of the surgeon, as to the extent of the incisions.

The standard urethral calibre accepted by all authorities, was then 21 mm. circumference (French scale), or No. 9 of the English scale, beyond which sizes no necessity for interference, on account of symptoms, was recognized. The individuality of the urethra had not been discovered, and urethral instruments for the most extreme dilatation, as for the overdistention of stricture, did not exceed 30 mm. in circumference; while 21 mm. was considered sufficiently large for use in all ordinary practice. The permanent cure of stricture by dilatation, by divulsion, or by division was not effected nor expected, and even the possibility of a radical cure, by any

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<sup>1</sup> Read before the Association of Genito-Urinary Surgeons, Washington, September, 1888.

method, was denied by all accepted authorities. Under this condition of things, dilating urethrotomy was proposed. It was based upon the acceptance, 1st, of an individual calibre for every urethra; 2d, upon the alleged necessity (in order to secure the best results) for complete division of all presenting stricture up to the normal urethral calibre; this point to be ascertained by actual measurement in each case.

This was at first determined with difficulty, and only approximately, by means of accurately graded metallic bulbous sounds.

Subsequently, however, with increased ease and precision, through the urethrometer which was presented by me to the profession in 1874.

Through the use of this instrument, after a time it became apparent that a proportionate relation existed between the size of the flaccid penis and the normal urethra in any given case, and this fact was subsequently found of much value in estimating the normal urethral calibre, in cases where no instruments for actual measurement were attainable.

Through the use of the urethrometer, also, the external urethral orifice, which had early proved a serious obstacle in ascertaining or estimating the normal urethral calibre (especially as it had been previously accepted as a guide to that calibre), was found to be of varying size (independently of the urethra associated with it), except in its perfect development, when it was found to correspond completely in size with that of the canal behind it. Further observations soon made it evident that contractions of the orifice were capable of producing troubles similar to those caused by stricture further down the urethra.

The importance of recognizing the various degrees of contraction between the previously accepted standard (*i.e.*, 21 F. or 9 E.) and the normal calibre, as ascertained by actual measurement, was made more evident as the study of strict-



Original Form  
of Otis's Ure-  
thrometer.

ure troubles under these new conditions was proceeded with. It was found, notably, that gleet, which had from time immemorial been considered the opprobrium of medicine and surgery, was, in certainly a large proportion of instances, dependent on the presence of urethral strictures, usually of large calibre, not readily detected in ordinary examinations. The urethrometer, which was the outcome of a necessity for definite measurements (in order to use the dilating urethrotome with accuracy), thus broadened its own field to an extent little expected when its use was initiated. Through the division of strictures, often but slightly diminishing the normal urethral calibre (previously recognized as frequent in cases of gleet), it was found that in some cases the gleet disappeared without other treatment, and thus its dependence upon the stricture for its continuance was finally demonstrated. It was also found that the method of operation upon a stricture made tense and thinned by dilatation, required a much less extensive incision for its complete division than when flaccid, and that in thus dividing it there was a marked immunity from serious hemorrhage, from urethral fever, from abscess, pyæmia, etc., which had been considered sources of danger in internal urethrotomy when complete division of the stricture was contemplated.

In the experimental experience of the first years (1871, 1872, and 1873) with the dilating urethrotome, the grave responsibility of so radical a departure from previous methods was not under-estimated. The attention of eminent surgeons was invited to the procedure, and their presence secured at many of the operations.

Frequent reports of progress were made to societies, and every available opportunity was accepted to demonstrate in public and in private, at home and abroad, the method of operating, and from time to time to present for examination cases upon which the operation had been performed.

The new instruments, which at first were of necessity more or less crude in design, as well as in manufacture, were studiously modified and simplified, until, by 1874, it may be said that they were brought to a condition of satisfactory efficiency, and the operation of dilating urethrotomy—already

having received much attention, and some practical acceptance, from surgeons in our own country, as well as in various parts of Europe—was now fairly launched into the field of genito-urinary surgery. The approval and the adoption of the operation, necessarily implied abandonment of the old views of urethral proportions, and an acceptance of the individuality of the urethra with a normal calibre of from 30 to 40 mm. in circumference, and an average of about 32 mm.

After the experience of another year, with the operations and its results (a report of one hundred tabulated cases, comprising division of two hundred and fifty-eight strictures, having been presented by me at a meeting of the New York State Medical Society, in March, 1875), it was thought not too soon to make a distinct statement of the claims of dilating urethrotomy for precedence over the usual methods of internal urethrotomy for the treatment of urethral stricture; as well as those by divulsion, and (in the greatest majority of cases) over the plans of gradual dilatation, for all strictures anterior to the bulbo-membranous junction. In this statement I insisted, 1st, upon a necessity for acquiring knowledge of the normal urethral calibre before any operative measures were instituted, and of the exact locality and size of every stricture in a presenting urethra; 2d, that there should be an accurate adaptation of all procedures to the individual strictures, with intent to remove them through complete sundering at some one point. Claiming this to result (when the division was completely effected), 1st, in the greatly diminished total risks of operative measures, as compared with attempts at more or less complete removal of strictures by any other method; 2d, in the ultimate complete removal, by absorption, of strictures so divided.

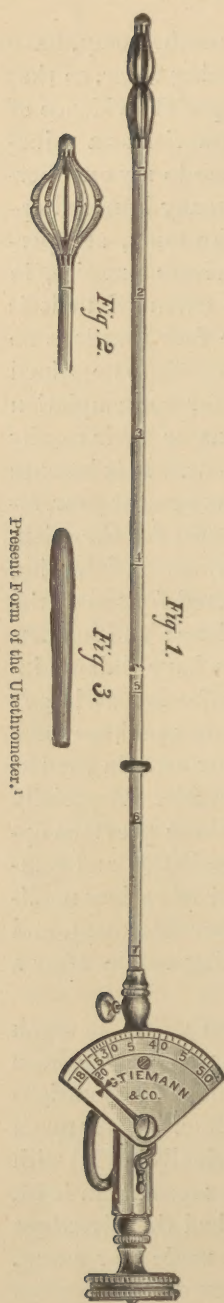
In my first report of one hundred tabulated cases, comprising two hundred and fifty-eight strictures operated on, it was shown that no deaths or grave accidents had occurred, and that in thirty-one re-examined, two over three years, and three over one year after operation, freedom from every trace of stricture was demonstrated. From this fact, the possibility of a radical cure of stricture was then asserted. Since that time, March, 1875, the claims which were then squarely

and earnestly made in favor of dilating urethrotomy, have found full corroboration and steadily increasing favor, so that here to-day there is no necessity of citing specific evidence of its general acceptance by the surgeons of America as a valuable surgical procedure. From what has come to my own personal knowledge, I am led to believe that many hundred operations upon strictures, by dilating urethrotomy, are performed in public hospitals, and also in private practice, in America, every year, and that the favor extended to it is steadily increasing; but, perhaps from the fact that it is no longer a novelty, and that there is but little credit to be gained from statistics which offer no new subjects for contemplation or discussion, the reports of these operations or their results do not find their way into the medical journals. It is because of this and also from the fact that, within the present year, already over sixty complete cases of instruments for the scientific diagnosis of stricture, and for the performance of dilating urethrotomy by my method, have been ordered for use at the military posts of the United States Army alone; and further, that prominent surgical instrument-makers have claimed increasing sales of my instruments to the profession at large; chiefly on these accounts, I have concluded that perhaps some of the results of a studious experience of my own in the use of these instruments might not be unacceptable. Especially has this seemed to me desirable for those whose previous opportunities have not been favorable for observation and comparison of results by different instruments, or of various modifications in the details of operations and after-treatment, and also who have not had opportunities of testing results after a long period from the date of operation.

In pursuance of this design, I also beg leave, first, to speak of some of the changes and improvements which have been made in instruments for diagnosis of stricture and operations by dilating urethrotomy, up to the present time. After much experimentation the urethrometer, made originally (1874) with jointed metallic bars,<sup>1</sup> was superseded in great measure, in 1875, by one made with steel springs, which latter had the advantage of giving a better-shaped bulb, and could be made 5 or 6 mm.

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<sup>1</sup> See page 4.



less in size than the former. It proved a very efficient instrument, and when well made, seemed to fulfil all the necessary requirements; but the difficulty of having it well made, especially as to the strength and temper of the springs, and its liability to rust and breakage, proved a source of much annoyance, besides involving much care and expense to keep it in good working order. A little more than a year ago, especially urged by the necessity of having a more enduring instrument for use in the military and naval service, I succeeded, through a competitive contest between the prominent instrument-makers of New York, in having a perfectly satisfactory instrument made, without springs and with a compass of from 18 to 45 mm. This, when well made, should last for many years, without the necessity for repair.

Next, in regard to the dilating urethrotome. Since its first presentation to the profession in 1872, this instrument, through continued efforts for increased simplicity in construction and increased directness and accuracy in application, has necessarily undergone many modifications. One of these was fully twelve inches long, and *curved*, with especial design of securing its more easy adaptation for the division of strictures at or beyond the bulbo-membranous junction. It was soon found, however, that while introduction into the curved portion of

<sup>1</sup> Messrs. George Tiemann & Co. and Messrs. Hazard, Hazard & Co., of New York, have been chiefly instrumental, under my direction, in bringing the urethrotome to its present satisfactory form.

the urethra was facilitated, the dilatation by it, thus curved, was unequal, and could not be correctly indicated on the dial, thus rendering it unreliable. And what was a still stronger reason for condemning it, a further experience with dilating urethrotomy proved that division of stricture, by any form of urethrotome, beyond the bulb, was unsafe, and, in my opinion, distinctly not within the legitimate province of dilating urethrotomy. I have repeatedly condemned this long, curved, dilating urethrotome, in public and in private, to surgeons, students, and instrument-makers, for the last ten years; but in spite of my efforts it continues to be called for, and consequently to be made and sold; for which reason I take this especial opportunity again to condemn utterly this form of dilating urethrotome.

The one, and the only dilating, urethrotome I use and recommend for all operations of dilating urethrotomy, is the short, straight instrument which I now exhibit,  $8\frac{1}{2}$  inches in length, circumference of shaft, 16 mm., and capable of being expanded to 45, with a blade running 2 to  $2\frac{1}{2}$  mm. above the groove. I desire here to advise against the use of this instrument as a divulsor. When, in dilating strictures during operation, any undue strain is felt, it should be at once relieved by passing the blade through the stricture, then continuing the dilatation, and if necessary cutting again in a similar way, until a dilatation of two or three millimetres may be made without marked



resistance, a fact which, as a rule, indicates the complete sundering of the stricture. In cases where there is some uncertainty as to the exact point of binding during the operation, the use of the bulbous sound will define it, saving unnecessarily long incisions. In regard to the locality of the incision, I do not hesitate to reiterate my former opinion in the strongest terms, that it should be always and only *superiorly*, i.e., on the roof of the urethra, and as nearly as possible, exactly in the median line. A more generous vascular distribution in the peri-urethral tissues below will account for the fact that hemorrhage is more liable to be severe when the incisions are made inferiorly, and is a sufficient reason why inferior incision should be avoided.

Again, when the tissues on the inferior surface are subjected to the tension necessary to secure the complete sundering of more than usually deep or resilient strictures, when the knife is drawn through them, the incision may extend even through the fibrous sheath of the corpus spongiosum, and make an infiltration of urine into the adjacent cellular tissue quite possible. A number of cases of this, always grave, accident, have occurred within my personal knowledge.

One within the past year. This case I saw in consultation, on account of unusual hemorrhage, which continued after the operation. Much swelling had followed, which it was thought might be from blood extravasation. Two incisions were said to have been made with the dilating urethrotome, *one on either side* of the urethra, for the division of several strictures. The urine was first drawn by catheter, but during the night following the operation, it was passed voluntarily. Increase in the size of the penis was immediately noticed, and when I saw the case it was about two inches or more in diameter, and considerably distorted. Escape of urine into the cellular tissue had evidently taken place.

Immediate free incisions through the integument and superficial fascia, and release of the imprisoned urine, saved from extensive sloughing, but when I saw the patient, several weeks after, he had an urinary fistula on the side of his penis, while several prominent points of stricture still remained in the urethra.

In dividing the strictures *superiorly*, and in the median line, the knife, if penetrating to a point beyond the sheath of the corpus spongiosum, comes in contact with the fibrous tissue joining it to the corpora cavernosa, which barrier affords the greatest security against accidents from incision in the median line, but to which deep incisions in all other directions are always liable.

I believe that one important reason why the operation of dilating urethrotomy, in my hands, has been so uniformly successful, and so uniformly free from untoward results, lies in the fact that I always divide the stricture on the superior surface of the urethra, and as nearly as possible in the median line. Up to the present time, as I have stated, dilating urethrotomy has, in my hands, proved an eminently safe operation.

At the meeting of the International Medical Congress, held in London in 1881, I reported six hundred and sixty-four operations of my own without a death, or permanent disability of any sort. My operations since that date will swell that number to more than one thousand, and not only have I never yet had a death resulting, when the dilating urethrotome alone was used (that is, when it was not preceded by the use of the urethrotome of M. Maisonneuve, or its equivalent), but I have never yet seen an abscess, nor an escape of urine into the tissues, nor an attack of pyæmia follow the operation. I believe another prominent reason for the safety from accidents which has attended my operations will be found in the scrupulous care of instruments, securing absolute cleanliness and asepsis as far as possible, and in the use of all available antiseptic precautions, for patients and instruments, both before and after operation. Washing the parts externally with a solution of the bichloride of mercury 1 to 1,000, and using injections of boric acid internally, two or three times a day, until healing is complete. Using the catheter for emptying the bladder, for the first few days after operation, whenever it is well borne, chiefly as a preventive of urethral fever; but in certain cases where the urethra is very sensitive and intolerant of its use, allowing the patient to pass his own urine from the outset. I am a believer in the power

of quinine and morphine to prevent urethral fever, in many cases, when contact of urine with freshly made urethral wounds cannot be avoided, and am accustomed, in such cases especially, to administer a suppository composed of 10 grains of quinine with  $\frac{1}{4}$  grain of morphine, immediately after operation.



Author's  
Endoscopic Tube.

And now, in regard to the accident of hemorrhage. When incisions are made beyond three inches, I take the precaution of having the perineal crutch<sup>1</sup> in position immediately after operation, so that, should hemorrhage occur subsequently, the patient can readily bear down upon it, and thus be promptly secured from any leakage back into the bladder. Effective pressure may be made at any desired point anterior, and thus always prevent any considerable loss of blood in any case. In cases where hemorrhage is not completely controlled by temporary pressure I have found nothing better than the introduction of my hard-rubber endoscopic tube, formerly recommended, any necessary counter-pressure being made by bandage. This may remain, if necessary, for two or three days, removing the tube only for cleansing, urination being readily effected or catheter passed through it on removal of the obturator. Cases requiring these unusual measures have not occurred, in my experience, in more than one-half of one per cent. of cases operated on. As a rule, to which there are very few exceptions, but slight inflammatory action follows even the most extensive incisions of dilating urethrotomy, although there is, as a rule, a pre-existing more or less acute urethritis in every case operated on; on the contrary, this is usually lessened and the sensitiveness diminished. There is, however, in some instances where there is much sexual irritability, increased tendency to erection, and more or less plastic exuda-

<sup>1</sup> See Otis on Stricture of the Urethra: its Radical Cure, p. 283.

tion in the immediate vicinity of the incisions, resulting in more or less troublesome chordæ. The exudation causing this, as in gonorrhœa, usually passes off in a few days, unless the irritation is kept up and increased by some extraneous influence, such as a previously existing acrid discharge, sexual excitement, or too frequent or rude introduction of sounds. In such cases adhesions between the mobile layers of the periurethral fascia may occur, which, unless accidentally broken up by strong erections, may remain for weeks, and even in some cases for many months; sometimes becoming a source of great annoyance, but finally passing off completely without any special treatment. In a former account of such cases<sup>1</sup> I recommended a diagonal incision across the superior wall of the urethra at the most salient point of incurvation, an operation which at my hands met with success in several instances. Subsequently, however, I adopted the plan of a mercurial inunction at the point of adhesion, which gave slow but finally satisfactory results. Within the past year, however, I have combined this with systematic, gentle massage, on a short sound, for ten or fifteen minutes once or twice daily, always falling short of producing tenderness. The results of this plan have already proved its capacity to remove the most pronounced troubles of this sort within a few weeks. Extension of the penis upon the sound, to as nearly as possible its full length, every day or two after the operation, has seemed to me serviceable in preventing such adhesions.

One point in connection with the operation of dilating urethrotomy which has been the source of much discussion and of some animadversion may, perhaps, be briefly considered to advantage at this time. This is in regard to division either of congenital or acquired contractions of the meatus urinarius externus. The experience and the study given to this matter, since my early discussion and advocacy of this procedure in 1875, have only confirmed the views then presented. The necessity of repeated passage of sounds of the full normal calibre of the urethra, subsequent to the complete division of stricture, in order to secure a permanent

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<sup>1</sup> Otis on Stricture, pp. 290, 291. Putnam's Sons, New York.

cure, renders enlargement of the orifice to that extent essential. This can rarely be done without unwarrantable violence, except by incision. Contractions of the meatus, congenital or acquired, have been also proven to initiate and prolong gleet discharges, and to be a source of various more or less important reflex difficulties throughout the genito-urinary tract, and not infrequently involving some of the spinal centres. Anything short of a complete division of the contracted orifice, up to the full normal urethral calibre, is usually insufficient to give the desired relief in such cases; but if skilfully and judiciously performed, the operation is, in my belief, absolutely free from all reasonable objection, and its results are productive of more prompt, complete, and lasting benefit to the patient, and more satisfaction to the surgeon, than any operation of like gravity in the entire range of surgery.

The charge that has been made against it, that it diminishes the sexual power, I believe my experience with the operation justifies me in asserting is wholly groundless. The fact being, on the contrary, that in cases of sexual weakness I have not infrequently found strictured meatus to be a prominent factor in inducing it, and the judicious division of the contraction one of the most potent measures in its relief or cure. That occasional irregularity of the stream has resulted from unskilful division is true, and that the apparent force of the stream has been diminished, in rare cases, is also quite true. There is no excuse for the former with a fairly skilful surgeon, and in the latter case, when it is remembered that the propelling force is in the bladder, and not in the urethra, it will be seen that such division could only affect the stream slightly, except where the propelling power of the bladder was, by a previously existing atony, reduced to the minimum. I have reported a case where the urethral orifice was divided, for the relief of grave reflex troubles, to 40, in a urethra of normal calibre 34, giving complete relief to those troubles, which had resisted repeated lesser incisions, and where subsequently the patient (now an eminent medical man) became the father of several children; and with the meatus of this enormous size he is still able to propel his urine in an unbroken steady stream fully three feet. In this connection I

would suggest that the dilating urethrotome should, in my opinion, never be used for the division of contractions within half an inch of the orifice, and that incisions for that purpose should be made with a straight, blunt-pointed bistoury, and always on the *inferior* aspect or floor of the urethra, except where the meatus is placed so low that it is impossible to get sufficient room for the passage of the proper-sized sound without incising the superior also. This for the reason, chiefly, that incisions *superiorly* in the glans recontract quickly, or if they do not, absorption of the tissue of the glans may occur in the line of the incision, if at all extensive, which may result possibly in a distinct cleft, as occurred in one such case that came under my observation, some years since, giving it the appearance of a bifid glans. The enlargement of the orifice should never be made by a sudden, quick stroke of the knife, as it is sometimes the custom of surgeons to do, but under cocaine or ether, very deliberately, and by repeated careful incisions, always downward and exactly in the median line, until by repeated trial with the bulbous sound the precise size required is attained. Should the frænum be in the way, if broad and flat, the incision may be carried through its centre as far as its base; if narrow, it should be first snipped away to the same extent. When the meatus is situated too low to allow sufficient room, the surgeon must content himself with an inferior incision that shall not encroach upon the true floor of the canal, and will have to use the urethrometer, or its equivalent, instead of the sound, for keeping the sundered ends of the strictures from uniting until healing of the incision is complete. If, in addition to the contraction of the orifice, bands of stricture are found immediately adjacent; unless within one half or two-thirds of an inch, they should be divided superiorly with the dilating urethrometer. Incisions on the inferior aspect beyond the latter point may be followed by urinary infiltration. And now I wish to speak, lastly, of my experience and belief in regard to the permanence of results in dilating urethrotomy; that is, as to the validity of the claims which have been made for the radical cure of stricture of the urethra by this method of treatment. It is not unusual for surgeons to

infer that cases treated by various methods, and apparently cured, are really so when they do not return to them for treatment. This proof, however, will not suffice where the radical cure of stricture is claimed.

A re-examination, with the bulbous sound, of the full size of the pre-determined normal urethral calibre, or with the



Otis's Bulbous  
Sounds.

urethrometer, after many years, will alone give the necessary proof upon which such a claim can be sustained. The acknowledged failure of all methods, except that of dilating urethrotomy, to wholly and permanently remove the stricture tissue, is accepted by those without an ample experience in this, as a sufficient evidence that radical cure of stricture is impossible by any method. Even Sir Henry Thompson says,<sup>1</sup> the more freely he divides stricture the more permanent are the results; that he has never had trouble from cutting stricture too freely, while he has often had occasion to regret having cut too little; and that he has frequently seen cases where relief has continued for years after internal urethrotomy. Yet he says, "I question very much if I have ever seen a case which has been completely cured by any treatment whatever." Under such a weight of testimony adverse to the probability of the radical cure of stricture, proof of facts claiming this for dilating urethrotomy must be full and conclusive. Preliminary to the production of such proof it may not perhaps be out of place to call attention to the important fact that by no other method than dilating urethrotomy is complete sundering of the stricture, at some one point, insisted on; that upon the accomplishment of this, whether by means of the dilating urethrotome

or by any other instrument, by one or by repeated operations, possibilities of a radical cure solely depends. Occasional failure to secure against the return of stricture, after the operation

<sup>1</sup> Some Important Points connected with the Surgery of the Urinary Organs. Students' Edition, 1884.

of dilating urethrotomy, does not disprove this position, but simply indicates a miscalculation on the part of the surgeon as to the depth and extent the incision required, resulting in a failure to completely sunder the stricture. The exceptions I have met have been very rare, and apparently due to the extension of the stricture-tissue beyond the reach of any incisions which could be safely made. The first really confident claims for the capacity of dilating urethrotomy to bring about the complete and permanent cure of stricture were made in 1875, and were based upon the results of thirty-six re-examinations with the bulbous sound of the full size of the normal urethra, at periods varying from six months to three years after the operation, during which interval no use of sounds had been resorted to. In 31 of these cases, or about eighty per cent., *complete freedom from the former strictured condition was demonstrated* by the unobstructed passage, to and fro, throughout the entire urethra anterior to the bulbo-membranous junction, of a metallic bulbous sound of the full normal size of the urethra, as determined at the time of operation. In a second series, consisting of 136 tabulated cases, presented in 1878, 82 re-examinations were reported, out of which 67 were found entirely free from stricture. In 3 of these cases six years and six months had intervened between the date of operation and the re-examination; in 2 cases, over five years; in 3 cases, over four years; in 10 cases, over three years; in 7 cases, over two years; in 20 cases, over one year; in 10 cases, over six months.

Besides these, 2 cases were reported in the second edition of my work on "Stricture of the Urethra," operated on in 1872 and in 1880 re-examined, and then, over eight years from date of operation, found to be free from stricture. In the first case five strictures were originally present, the smallest of a calibre of 22 French. In the second, there were also five bands of stricture operated on, the smallest 16 French. In addition to these cases was one operated on in March, 1875, for four strictures, defined by a bulb of 24 mm. in circumference, in a urethra of normal calibre, 36 French. This case was re-examined in May, 1880, and found completely free from all stricture by the easy passage of a No. 36 bul-

bous sound, five years from the date of operation, and no sound, bougie, or other instrument of any sort introduced during the interval. Again, in 1881, 2 cases presenting a long interval between operation and re-examination were met—the first seven years, the second eight years—the first, whose strictures, four in number, were divided from 27 to 36 French; the second, where there were six strictures, ranging from 24 to 30, were divided to 38.

Another case, operated on in May, 1871, re-examined in 1883, the longest interval then on record, showed complete cure of stricture, by dilating urethrotomy, over twelve years after the date of operation. During the past summer I have had extracted from my case-books, and carefully tabulated, a third series of operations in 420 cases, in which the normal calibre of the urethra, the size, number, and locality of the strictures are recorded, with the results of re-examination in 62 cases.

Recontractions were found to have taken place in 7 cases of stricture situated posterior to one inch, while at or near the meatus reconstructions had occurred in 11 cases. I have recently had an opportunity of re-examining the case first operated on by dilating urethrotomy, and for the complete division of whose strictures the dilating urethrotome was originally designed. Extensive stricture was present, which had failed to be permanently relieved by several years of treatment by gradual dilatation. Divulsion with the instruments of both Holt and Vollemier had been practised to the fullest capacity of those instruments, and reconstructions from that point to 24 of the French scale had taken place, associated, as the chief source of annoyance, with a persistent gleet. By means of the dilating urethrotome the strictures were all divided up to 32 French. Subsequent re-examinations, on several occasions, at intervals of three or four years, were made with the bulbous sound No. 32, without at any time detecting a trace of former stricture, and the gleet which disappeared within a few weeks after the operation did not recur. No instrument of any sort was introduced for dilatation or any other purpose, except by myself at the intervals just mentioned, for the purpose of examination alone. On

the last occasion, May, 1888, Mr. A—— (whose case is fully described in my book on "Stricture of the Male Urethra: Its Radical Cure") came to me for consultation concerning a difficulty quite independent of stricture, but was induced to permit me again to examine his urethra. I at first introduced, as on previous occasions, a 32 bulbous sound, and was struck with the complete freedom from any holding at any point. I then introduced the urethrometer, and turning it up to 34, two millimetres above the previously estimated normal calibre, found that gentle traction enabled me to draw it out at this size, thus demonstrating in the most perfect manner the complete absence of the former strictures and the radical cure of the case, as shown by entire absence of every trace of stricture fifteen years and ten months from the date of operation (May, 1871), *New York, September, 1888.*

In issuing a reprint of the foregoing article it has occurred to me that a few words in further consideration of the claim for the radical cure of anterior urethral stricture by dilating urethrotomy, and also in regard to deep urethral stricture, may not be without value in connection with the foregoing. At the risk of being charged with egotism I will venture to quote from a well-known American authority on genito-urinary diseases, viz., Professor Edward L. Keyes, author of "Genito-urinary Diseases and Syphilis," etc. In a discussion before the American Association of Genito-urinary Surgeons, at its last meeting (Newport, May 21, 1889), in opening his paper on the question of the "Radical Cure of Deep Urethral Stricture," he says: "Strictures lying in the pendulous urethra have been demonstrated to be capable of radical cure, chiefly by the unceasing efforts of Professor Otis. I think that we may all accept it as a demonstrated fact that internal urethrotomy, preferably performed with the dilating urethrotome, will, if the incision be deep enough to extend entirely beyond the outer limit of the stricture tissue, radically cure organic stricture of the anterior urethra." Dr. Keyes, however, draws a distinct line between the curability of anterior strictures and that of deep urethral stricture, which latter his paper was chiefly presented to show were rarely susceptible of radical cure by any method. It is tolerably well understood

by the profession that Professor Keyes has not come to his present opinion in regard to the curability of *anterior* stricture without previous active dissent from my claims, nor without a large experience in all methods of treating urethral stricture.

Fortunately, the greatest proportion of strictures which call for treatment have been shown to be in the pendulous portion of the urethra. I have long held that strictures beyond the bulbo-membranous junction were not within the province of dilating urethrotomy, chiefly for the reason that the depth of the incisions necessary for complete division was likely to be followed, in this region, by hemorrhage not readily controlled, and because drainage of the wound was rendered difficult by the action of the compressor urethræ muscles. I have therefore practised and advised the adoption of external perineal urethrotomy in all cases posterior to the bulb. Even in strictures at five or five and a half inches, while I believe that, in the majority of cases, dilating urethrotomy is safe, yet if constitutional disturbance supervened, I do not hesitate in such case to make a perineal opening for the purpose of securing freedom from irritation through passage of urine over the urethral wound, as well as to bring all the parts within more easy reach of antiseptic applications.

I have demonstrated in a very considerable number of cases that such a procedure does not add very materially to the risks of urethrotomy nor to the time required for recovery, ten days to two weeks being a fair average in the great majority of cases. My first published case of *external and internal urethrotomy combined* was done in 1873, and cited at length in the first edition of my work on the "Radical Cure of Stricture" (Putnam's Sons, 1878). Since that time I have practised and publicly taught, and repeatedly demonstrated at my clinic at Charity Hospital (in connection with the College of Physicians and Surgeons) the advisability, in all cases not complicated with organic disease contra-indicating surgical interference, of combining external and internal urethrotomy where strictures of the anterior and posterior urethra were present; and my experience has shown that the inclusion of anterior strictures, many or few, in the scope

of a perineal urethrotomy, does not add materially to the risk of the operation nor prolong the recovery in the least degree.

The operation of "External and Internal Urethrotomy Combined," as I originally termed it, has somewhat recently been brought to the notice of the profession abroad by my friend Mr. Reginald Harrison, of Liverpool, and I am quoted by him as *approving* it.

The foregoing statement of my connection with this important surgical procedure will show that my approval has not been given without ample consideration.

In my opinion, one of the prominent reasons why internal urethrotomy in deep urethral stricture has so often failed of permanent results is that in such cases there are, as a rule, to which I have never seen an exception (save in stricture of traumatic origin), one or more anterior strictures, which prevent the occasional passage of an instrument of the full natural calibre of the urethra, until healing has taken place; without which no radical cure is probable, even if it may be possible.

5 WEST FIFTIETH STREET, July 30, 1889.









